

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1, 2, 4, 5, 8, 11, 12, and 16-20 are pending in the application, with 1, 8, 11, 18, 19, and 20 being the independent claims. Claims 1, 8, 11, and 16 are sought to be amended. New claims 17-20 are sought to be added. Support for these changes can be found, *inter alia*, on page 6 (lines 12-15), page 7 (lines 1-8), page 8 (lines 1-18), and page 11 (lines 1-28) of the Specification, and FIGs. 4-6 of the Drawings. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***Allowable Subject Matter***

In the Office Action, the Examiner has objected to claims 2, 5, and 12 as being dependent upon a rejected based claim, but asserts the claims would be allowable if rewritten in independent form. (Paper No. 9, page 5). Applicants appreciate the Examiner's conditional allowance of these claims. Accordingly, new claims 18-20 have been added to rewrite the previously presented claims 2, 5, and 12 in independent form. Applicants respectfully request consideration of new claims 18-20, and allowance of these claims as previously indicated by the Examiner.

***Rejections under 35 U.S.C. § 103***

In the Office Action, the Examiner rejects claims 1, 4, 8, 11, and 16 under 35 U.S.C. § 103(a), as allegedly being unpatentable over a combination of the following documents:

1. U.S. Patent No. 6,233,540 to Schaumont *et al.* (herein referred to as “Schaumont”);
2. U.S. Patent No. 4,918,652 to Bennington *et al.* (herein referred to as “Bennington”); and
3. U.S. Patent No. 5,678,028 to Bershteyn *et al.* (herein referred to as “Bershteyn”).

Applicants respectfully traverse notwithstanding the proposed amendments herein.

Regarding independent claims 1, 8, and 11, Applicants have amended these claims to better reflect an embodiment(s) of Applicants’ invention. Notwithstanding the proposed amendments, Schaumont, Bennington, and Bershteyn, taken alone or in combination, do not teach or suggest Applicants’ invention. For example, neither document teaches or suggests “when additional processing by at least one simulation module is necessary after [halting execution for each simulation module], *issuing a further clock credit* to each simulation module”, as recited in claim 1. Similarly, neither document teaches or suggests, for example, “a programming language interface (PLI) for each simulation module from the plurality of simulation modules, wherein said PLI receives a clock credit from said clock arbitrator and *enables and halts* simulation module execution on the *basis of synchronization points* detected to synchronize the plurality of simulation modules”, as recited in claim 8. Similarly, neither document teaches or suggests, for example, “fifth computer readable program code logic for causing the computer to *issue a further clock credit* to each simulation module when

additional execution by at least one simulation module is determined to be necessary after execution of said fourth computer readable program code logic [for halting execution for each simulation module]”, as recited in claim 11.

First, it should be noted that the Examiner makes no reference to the aforementioned recited features, as previously presented, in the Office Action. However, the Examiner cites Schaumont as the primary document. Assuming argumentatively that Schaumont teaches a “clock credit” (which it does not), Schaumont does not teach or suggest that a “further clock credit” is issued to perform “additional execution (or processing) by at least one simulation module,” as recited in claims 1 and 11. Schaumont also does not teach or suggest enabling or halting “simulation module execution on the basis of synchronization points detected to synchronize the plurality of simulation modules”, as recited in claim 8.

Schaumont, on the contrary, describes a token that can be used to demarcate the age of dataflow (see Col. 16, lines 12-16). Schaumont also describes that the “simulation of one clock cycle is done in three phases”, which consist of “a token production phase, an evaluation phase, and a register update phase” (Col. 23, lines 31-37). The evaluation phase, which occurs in each clock cycle, is an “iterative process” whereby if “a pre-set amount of iterations have passed, and there are still unfired components, then the system is declared to be deadlocked” (Col 24, lines 1-4). Therefore, Schaumont describes a “time-verification approach [that] allows the system feasibility to be checked at all times by warning the designer for deadlock and/or causality violations of the communication” (Col. 13, lines 33-36). Schaumont does not teach or suggest a system for synchronizing a plurality of simulation modules by **halting execution** of all simulation modules upon completion (or consummation) of an issued clock credit, **and issuing a further clock**

***credit*** if a simulation module requires additional processing or executing, as recited in Applicants' claims 1, 8, and 11.

Neither Bennington nor Bershteyn teaches or suggests the aforementioned features of Applicants' invention, and therefore, also fails to cure the deficiencies of Schaumont. As such, Applicants respectfully submit that Schaumont, Bennington, and Bershteyn, taken alone or in combination, do not teach or suggest Applicants' invention as recited in independent claims 1, 8, and 11. Dependent claim 4 depends from claim 1. Claim 16 has been amended to depend from claim 8, and new claim 17 has been added to depend from claim 8. Therefore, claims 4 and 16-17 are patentable over Schaumont, Bennington, and Bershteyn, for at least the reasons stated above, in addition to the features recited therein.

Accordingly, Applicants respectfully request consideration of new claim 17, reconsideration and withdrawal of the Examiner's rejection of claims 1, 4, 8, 11, and 16, and allowance thereof.

### ***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will

expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Date: 07-22-2004

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